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long distance service are available in competitive markets, the entry barriers are quite low. This is inconsistent with earning margins of 80 percent, suggesting instead that Professor Schmalensee's estimates are too high.

122. Second, his estimates are based on improper assumptions. For example, proprietary data submitted by AT&T indicate that ARPM measures for all switched services were \$0.181 per minute in 1994, \$0.172 per minute in 1995, and \$0.169 per minute in 1996.⁹⁰ Also, his estimate of long distance costs also appears too low. First, conservative estimates of network costs are in the range of \$0.01-\$0.02 per minute. In addition to these, the long distance firm must cover access charges of approximately \$0.06 per minute and retail-level and overhead costs that are likely to be in the range of \$0.04-\$0.06 per minute.⁹¹ This suggests that long distance operating costs are in the range of \$0.11 to \$0.14 per minute, before accounting for taxes and a normal return on invested capital. An ARPM of \$0.169 and operating costs of \$0.14 suggest a pre-tax operating margin of 17 percent, far below the 80 percent margins hypothesized by Professor Schmalensee.

B. BellSouth's Position as a Competitor

123. We agree with Professor Schmalensee that BellSouth is a formidable potential competitor in the interexchange market. However, as we noted earlier, BellSouth's

⁹⁰AT&T provided these Average Revenue Per Minute (ARPM) data for total interstate and intrastate switched services.

⁹¹For AT&T, non-network, non-access costs have increased as a share of revenues since 1988 from 25 percent to 32 percent in 1994 -- remaining approximately constant at \$0.058 per minute (see Figure 7).

monopoly power in local service raises the specter of monopoly leveraging; at the present time, no other firm is in a position to offer one-stop shopping to residential customers.

VII. RESPONSE TO CLAIMS OF THE WEFA GROUP

124. The WEFA Group has prepared an estimate of the consumer benefits from interLATA entry by BellSouth, based on the WEFA econometric model of the economy.⁹² When based upon appropriate assumptions, such econometric models are capable of generating useful insight into how changes in one industrial sector can have effects which propagate throughout the economy. Because telecommunications services are an essential input to virtually every productive activity in the economy, reduction in telecommunications prices generate large gains in economic well-being. Had the WEFA model been run with the assumption that local rates would fall by a similar amount as they assume toll rates would fall, the estimated benefits to South Carolina consumers would be significantly larger. Conversely, if lower toll rates come at the expense of higher relative local rates (because competition is delayed), then the overall effect on South Carolina's economy would range from zero to a large negative impact depending upon the input assumptions.

125. Therefore, the WEFA findings are and can be no better than the assumptions

⁹²The WEFA Group, *The Economic Impact of BellSouth's Entry into the interLATA Long Distance Markets in South Carolina*, (March 1997).

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employed in the scenarios. Unfortunately, the WEFA report is not based on appropriate assumptions regarding either the base case or the "BellSouth-entry" scenario. For example, WEFA assumes that BellSouth entry will result in a further decline in long-run prices for long distance service of 25 percent (*i.e.*, in addition to what would occur otherwise under the base case scenario). Because long distance prices already approximate economic costs, this assumption is incorrect. Consequently, the WEFA results shed no light on the issue of BellSouth entry on consumers' well-being.

126. Furthermore, although the WEFA report did not adequately describe the assumptions included in the base case scenario (*i.e.*, in which BellSouth is not allowed to enter long distance services at this time), this scenario is likely extremely conservative regarding its forecasts about the improvements in productivity and prices which can be expected in toll markets in the absence of interLATA relief. As a result, the WEFA study attributes far more credit to BellSouth's entry than is warranted. For example, the study assumes a dramatic increase in productivity growth of two percent per year due to interLATA relief, supporting this with ad hoc references to the trade press. Moreover, this assumption seems to be a common one for WEFA because they used the same assumption to estimate benefits of relaxing the MFJ line-of-business restriction on the BOCs in 1994⁹³ and

⁹³See WEFA Group, *Economic Impact of Eliminating Line-of-Business Restrictions on the Bell Companies*, Bala Cynwyd, Pennsylvania, July 1994, page 14. Although the report was issued after the information services restriction was eliminated, it specifically noted (page 7) that the "recently granted information services relief is not reflected in the Baseline forecast."

again to estimate the benefits of interLATA relief in 1995.⁹⁴ Much of WEFA's justification for this assumption in its 1994 study disappeared once the line-of-business restrictions were relaxed, yet WEFA has not adjusted its scenarios to reflect these and other important changes to the base case scenario.

VIII. SUMMARY AND CONCLUSIONS

127. The Telecommunications Act of 1996 is a landmark attempt to promote competition in all telecommunications markets. Recognizing the current state of local exchange competition, the Act contains broad instructions to promote competition in local markets and to deregulate. Around the country, state commissions are engaged in arbitrations to broker agreements between BOCs and entering competitors to ensure progress in local exchange Competition. For purposes of this proceeding, the Act also addresses competition in long distance markets. In particular, Section 271 of the Act seeks to identify and achieve criteria for the removal of restrictions against participation by BOCs in interLATA markets.

128. This affidavit addresses the following question: From an economic

⁹⁴See WEFA Group, *Economic Impact of Deregulating U.S. Communications Industries*, Bala Cynwyd, Pennsylvania, February 1995. For a critique of the WEFA analysis which applies as well to the most recent study, see R. Glenn Hubbard, *Economic Impact of entry into Long Distance Markets by Bell Companies: Response to the WEFA Study*, Mimeograph, Columbia University, may 1995.

perspective, what are the appropriate preconditions under which interLATA relief for BellSouth will be in the public interest? To answer this question, one must analyze two related sets of issues. The first set investigates and compares the current state of competition in markets for long distance services and markets for local exchange services. The second set investigates and compares potential gains and losses to consumers from interLATA relief for BellSouth and other BOCs.

129. We address both sets of issues, with a goal of informing the Commission of the economic principles that should guide the decision to grant or deny BellSouth the right to compete in interLATA markets. Two themes guide the analysis. First, while the removal of regulatory entry barriers is generally pro-competitive, premature interLATA relief is likely to be anticompetitive by raising local exchange entry barriers and threatening existing long distance competition. Second, the Commission should protect the process of competition, not competitors; premature removal of the long distance entry barrier would harm the process of competition while protecting BellSouth.

130. The principal conclusions of our affidavit are two:

- i. Long distance markets in general are already effectively competitive. Admitting BellSouth and other BOCs as additional competitors will contribute little to long distance competition, and as long as they continue to control local monopolies, will likely harm competition in local exchange markets as well as the long distance market. Nothing in

the submissions by BellSouth's affiants Jerry Hausman, Richard Schmalensee, Richard Gilbert. D. John Roberts, Glenn A. Woroch, or the WEFA Group in this proceeding causes us to alter this observation.

ii. Local exchange markets are still effectively monopolized.

Anticompetitive behavior by BOCs is unlikely to be restrained in the short-run by market-based competition. Further, regulatory restraint alone will be an inadequate safeguard against subtle anticompetitive practices. Permitting interLATA relief for the BOCs prior to there being effective local exchange competition enhances both the incentive and opportunity to engage in a range of anticompetitive practices. Given these points, our conclusion is that interLATA relief for BellSouth should be postponed until the success of effective local exchange competition is assured. In the near term, entry by BellSouth is likely to impede competition in both local exchange and long distance markets, reducing gains for consumers and frustrating the competitive intent of the Telecommunications Act of 1996.

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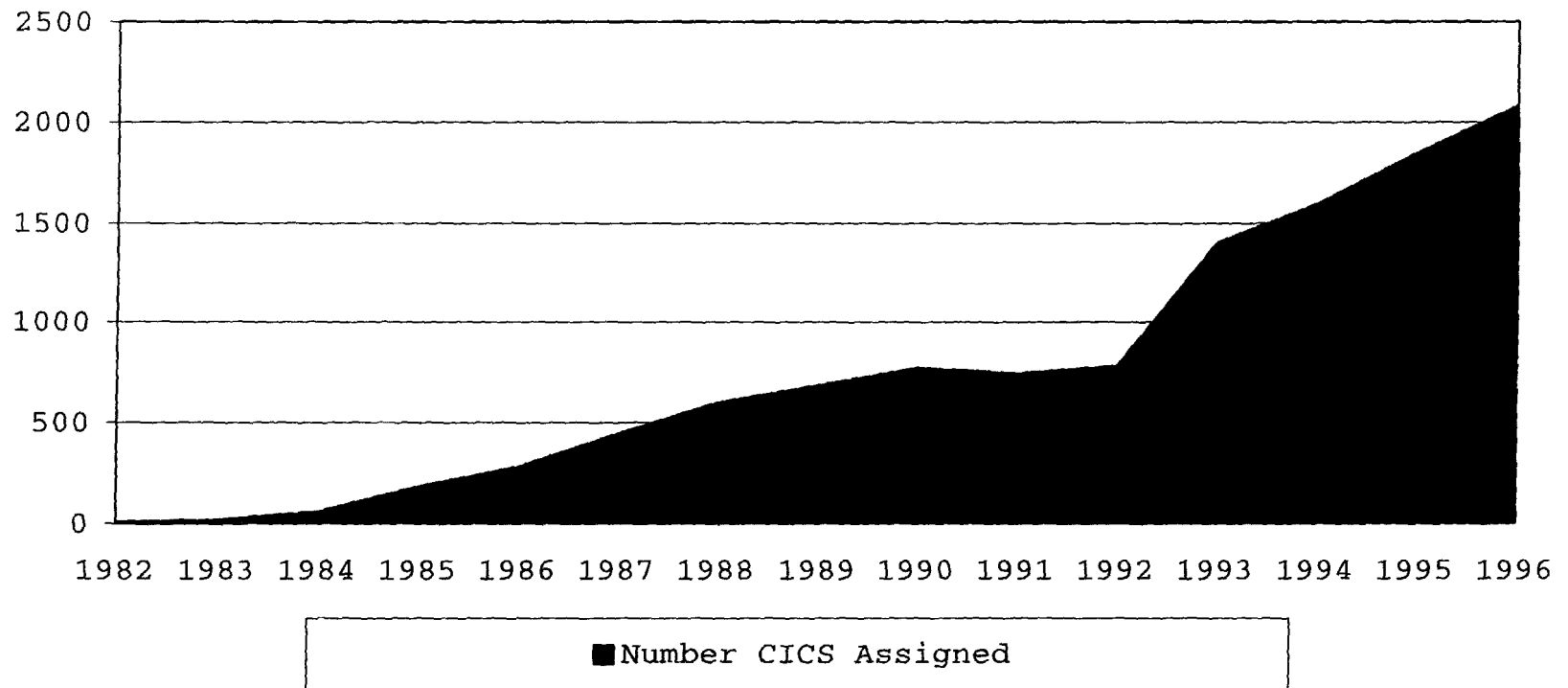
Figure 1: Composition of the Long Distance Industry, 1994¹

Tier by Annual Toll Revenue	Facilities- based	Resellers	Total	Share Toll Revenue (%)
Tier 1A: > \$5B	3	0	3	80%
Tier 1B: \$1B-\$5B	2	0	2	6%
Tier 2: \$100M-\$1B	9	1	10	3%
Tier 3: \$15M-\$100M	73	57	130	8%
Tier 4: \$5M-\$15M	120	128	248	3%
Tier 5: <\$5M	196	270	466	<1%
Total	403	456	859	100%

¹ Source: Salomon Brothers, *U.S. Telecom Services*, April 17, 1996, page 19.

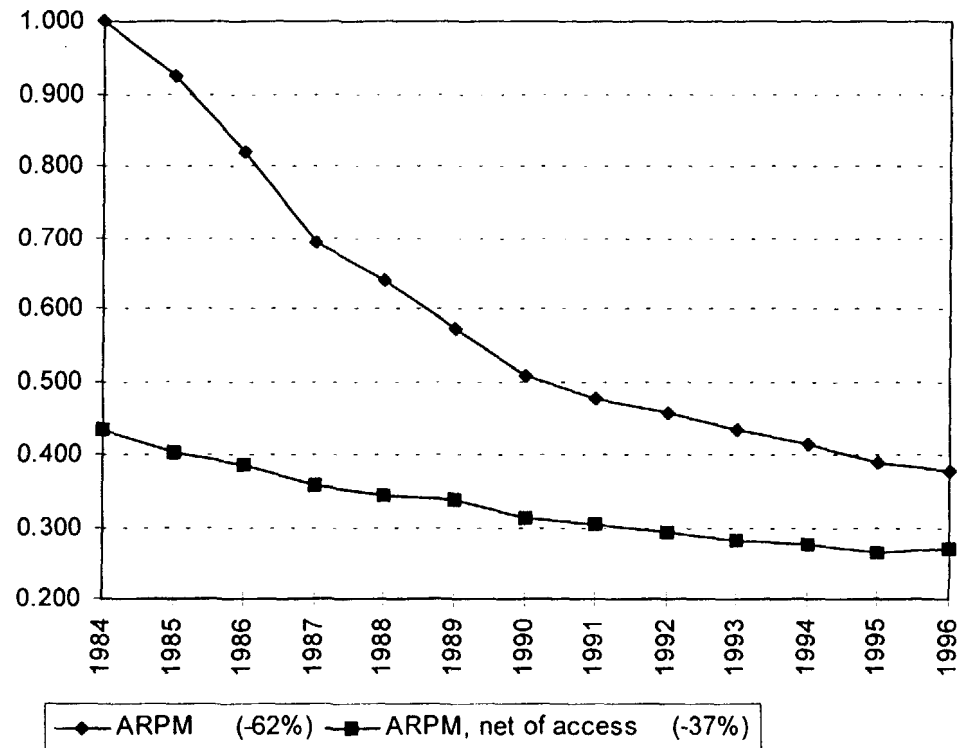
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Figure 2: Carrier Identification Codes Assigned¹



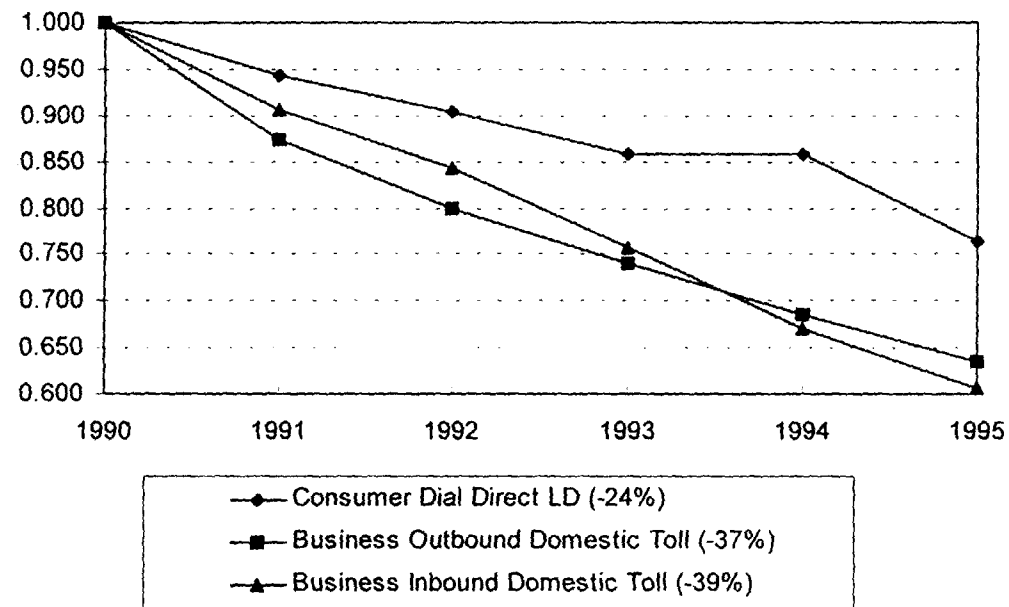
¹ Source: Federal Communications Commission, *Statistics of Communication Common Carriers*, 1995/1996 Edition, Table 8.13.

Figure 3: AT&T Pricing -- Real Growth in Switched Interstate Toll Service
(ARPM Index 1984 = 100)¹



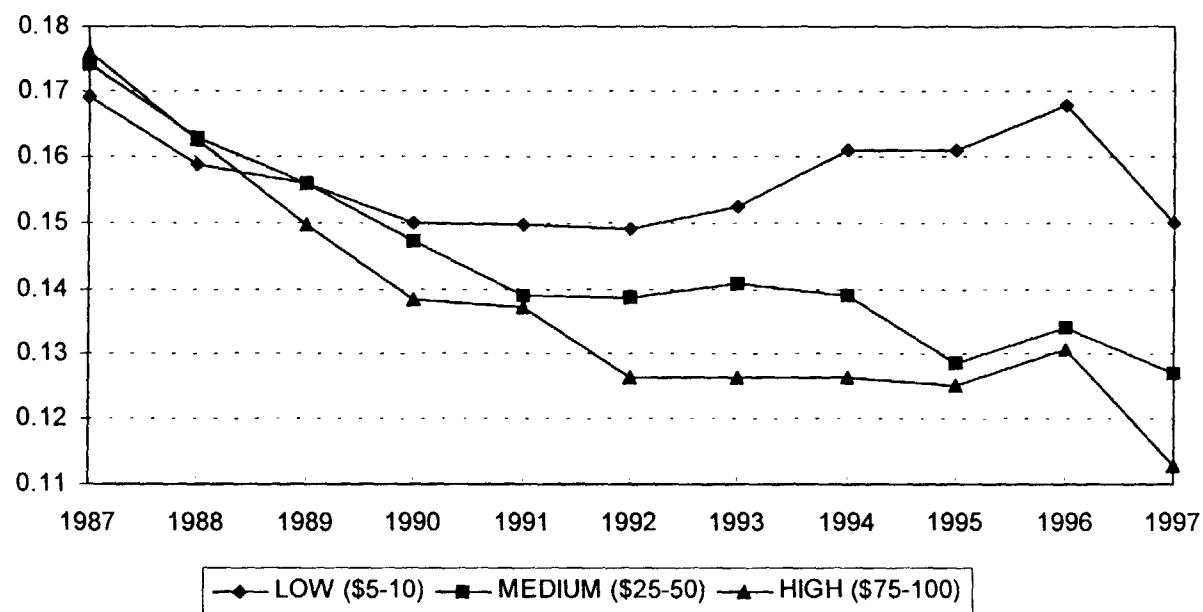
¹ Price indices for Average Revenue Per Minute (ARPM) and ARPM net of access are based on proprietary AT&T data for all switched interstate services. The nominal price data were converted to a constant 1984 dollars using the implicit GDP deflator reported by the Bureau of Economic Analysis in the *Survey of Current Business*.

Figure 4: AT&T Pricing -- Real Growth in AT&T Switched Services
(ARPM Index 1990 = 100)¹



¹ Price indices for Average Revenue Per Minute (ARPM) for Consumer Dial Direct Long Distance, Business Outbound for Domestic Toll and Business Inbound for Domestic Toll are based on proprietary AT&T data. The nominal price data were converted to constant 1990 dollars using the implicit GDP deflator reported by the Bureau of Economic Analysis in the *Survey of Current Business*.

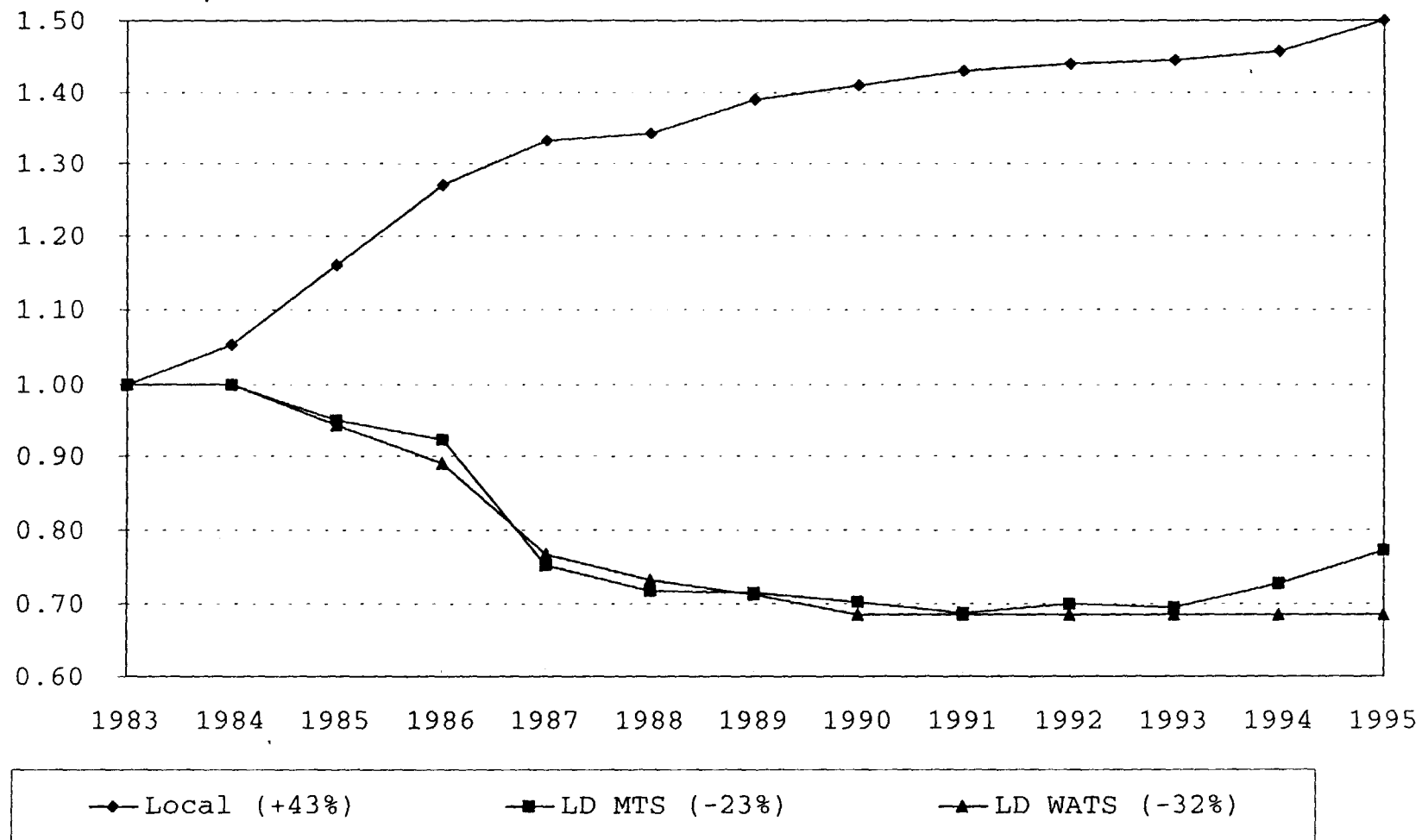
Figure 5: AT&T Pricing by Usage Category Dial-1 Offer Price History
(\$/minute)¹



¹ Prices for best offer prices are based on AT&T tariffs applicable to customers in each monthly usage category. This chart was prepared by Thomas Brand of AT&T, January 1997.

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Figure 6: Telecommunications Producer Price Indices¹



¹ PPI Index in 1983=100. Source: Federal-State Joint Board, *Monitoring Report*, CC Docket No. 87339, May 1996, Table 5.6.

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Figure 7: Income Statement Accounts for AT&T, 1988-1994
(\$ per switched conversation minute)¹

Acct#		1988	1989	1990	1991	1992	1993	1994
	Share LD revenue switched ²	86%	88%	88%	89%	89%	90%	90%
	LD Revenue (excl private) ³	0.239	0.221	0.205	0.198	0.192	0.18	0.181
5300	Uncollectibles	0.005	0.006	0.005	0.006	0.007	0.00	0.005
650	Total Plant Specific Operations	0.024	0.019	0.018	0.018	0.013	0.01	0.012
	Other non plant specific ⁴	0.012	0.011	0.010	0.007	0.009	0.00	0.008
6540	Access	0.013	0.092	0.085	0.079	0.074	0.07	0.065
6560	Depn and Amortization	0.016	0.019	0.017	0.018	0.012	0.01	0.013
690	Total Non specific Plant Opns	0.141	0.121	0.112	0.104	0.095	0.09	0.086
700	Total Customer Operations	0.034	0.034	0.032	0.032	0.031	0.03	0.034
710	Total Corporate Operations	0.020	0.020	0.010	0.021	0.029	0.02	0.019

% of switched long distance revenue

Acct#		1988	1989	1990	1991	1992	1993	1994
	LD Revenue (excl private)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
5300	Uncollectibles	2.0%	2.5%	2.5%	3.2%	3.7%	3.1%	3.0%
650	Total Plant Specific Operations	10.0%	8.6%	8.6%	9.2%	6.7%	7.0%	6.5%
6540	Access	47.4%	41.4%	41.4%	40.1%	38.7%	37.6%	35.9%
6560	Depn and Amortization	6.5%	8.5%	8.5%	8.9%	6.2%	6.2%	7.2%
700	Total Customer Operations	14.3%	15.5%	15.5%	16.4%	16.2%	18.4%	18.6%
710	Total Corporate Operations	8.5%	8.9%	8.9%	10.4%	15.2%	14.1%	10.4%

¹ Source: *Statistics of Communications Common Carriers*, Federal Communications Commission, 1988-1994, Table 2.9. The measure of switched Conversation Minutes of Use (CMOU) is based on proprietary data provided by AT&T for all interstate and intrastate services. Costs per minute are based on the share of long distance revenue switched times the appropriate expenditure category divided by the CMOU.

² The share of long distance revenue switched equals long distance revenue (excluding private) divided by LD network service revenues. Long distance revenue (excluding private) is the estimate of switched long distance revenue (=Acct 525 - Acct 5120).

³ Long distance revenue (excluding private) is estimate of switched long distance revenue (=Acct 525 - Acct 5120).

⁴ Other non-plant specific costs are given by Acct 690 - Acct 6540 - Acct 6560.

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I declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief.

Executed on October 14, 1997

R. Glenn Hubbard
R. Glenn Hubbard

COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF SUFFOLK) ss.

SUBSCRIBED AND SWORN TO BEFORE ME this 14th day of October 1997.

Marianne D'Amico
Notary Public

My Commission Expires:

 **MARIANNE D'AMICO**
Notary Public
Commission Expires Oct. 30, 1998

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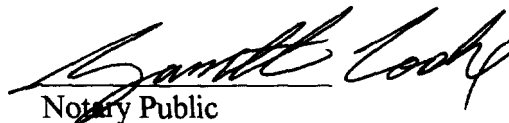
I declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief.

Executed on October 14, 1997



William H. Lehr

SUBSCRIBED AND SWORN TO BEFORE ME this 14th day of October 1997.


Notary Public

My Commission Expires:

GARRETH G. COOKE
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS
MY COMMISSION EXPIRES
DECEMBER 25TH 2003

ATTACHMENT 1

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Curriculum Vitae

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PERSONAL DATA

Born: September 4, 1958, in Orlando, Florida.
Marital Status: Married to Constance Pond Hubbard;
one child, Robert Andrew Pond Hubbard

FIELDS OF SPECIALIZATION

Public Economics, Macroeconomics, Corporate Finance and Financial Institutions, Industrial Organization,
Natural Resource Economics, Public Policy.

EDUCATION

Ph.D., Economics, Harvard University, May 1983.
Dissertation: *Three Essays on Government Debt and Asset Markets*, supervised by Benjamin M. Friedman,
Jerry A. Hausman, and Martin S. Feldstein.

A.M., Economics, Harvard University, May 1981.

B.A., B.S., Economics, University of Central Florida, June 1979, *summa cum laude*.

HONORS AND AWARDS

Exceptional Service Award, U.S. Department of the Treasury, 1992.

Distinguished Alumnus Award, University of Central Florida, 1991.

John M. Olin Fellowship, National Bureau of Economic Research, 1987-1988.

Teaching Commendations, Graduate School of Business, Columbia University.

Northwestern University Associated Student Government Teaching Awards, announced in 1985, 1986, and
1987.

Graduate Distinctions: National Science Foundation Fellowship, Alfred P. Sloan Foundation Fellowship.

Undergraduate Distinctions: National Merit Scholarship, National Society of Professional Engineers Award,
Florida Society of Professional Engineers Award, National Council of Teachers of English Award, Omicron
Delta Kappa, Financial Management Association Honor Society.

POSITIONS HELD

1997-1998	Visiting Professor of Business Administration, Harvard Business School.
1994-present	Russell L. Carson Professor of Economics and Finance, Graduate School of Business, Columbia University.
1994-1997	Senior Vice Dean, Graduate School of Business, Columbia University.
1988-1994	Professor of Economics and Finance, Graduate School of Business, Columbia University.
1995-present	Visiting Scholar and Director of Tax Policy Program, American Enterprise Institute.
1994	MCI Fellow, American Council for Capital Formation.
1994	John M. Olin Visiting Professor, Center for the Study of Economy and the State, University of Chicago.
1991-1993	Deputy Assistant Secretary (Tax Analysis), U.S. Department of the Treasury.
1987-1988	John M. Olin Fellow in residence at the National Bureau of Economic Research.
1983-1988	Assistant Professor of Economics, Northwestern University, with half-time research appointment in the Center for Urban Affairs and Policy Research.
1985	Visiting Scholar, Center for Business and Government, John F. Kennedy School of Government, Harvard University.
1981-1983	Teaching Fellow (Department of Economics) and Resident Tutor in Economics (Dunster House), Harvard University.

PROFESSIONAL ACTIVITIES

1987-present	Research Associate, National Bureau of Economic Research (Monetary Economics, Corporate Finance, Public Economics, Economic Fluctuations, Industrial Organization).
1995-present	Member, Board of Academic Consultants, American Law Institute.
1993-present	Panel of Economic Advisors, Federal Reserve Bank of New York.
1993-present	Board of Advisors, Institutional Investor Project, School of Law, Columbia University.
1994-1996	Member, Economics Grants Panel, National Science Foundation.
1993-1996	Member, Federal Taxation and Finance Committee, National Tax Association.
1990-1995	Co-organized research program on International Aspects of Taxation at the National Bureau of Economic Research, Cambridge, Massachusetts.
1995	Member, Program Committee, American Economic Association Meeting

- 1983-1987 Faculty Research Fellow, National Bureau of Economic Research.
- 1983-1986 Adjunct Faculty Research Fellow, Energy and Environmental Policy Center, John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts.
- 1986, 1988, 1994 Member of the Brookings Panel on Economic Activity.
- 1985, 1987 Special guest of the Brookings Panel on Economic Activity.
- 1990-1991 Organized research program on Environmental Economics and Public Policy at the National Bureau of Economic Research, Cambridge, Massachusetts.
- 1988-1990 Co-organized research program on Dynamic Models of Firms and Industries at the National Bureau of Economic Research, Cambridge, Massachusetts.
- 1985-1989 Organized research program and workshops on contracting in financial markets at the Summer Institute, National Bureau of Economic Research, Cambridge, Massachusetts.
- 1988 Organized Economic Fluctuations program on Industrial Economics and Macroeconomics, National Bureau of Economic Research, Stanford, California.
- 1986-1988 Organized research program and workshop on links between macroeconomics and industrial organization at the Summer Institute, National Bureau of Economic Research, Cambridge, Massachusetts.
- 1991 Member, Program Committee, Econometric Society Winter Meetings.
- 1982-1983 Member, Energy Modeling Forum VII Study Group, Stanford University, Stanford, California.
- 1981-present Consultant on research projects with private corporations and government and international agencies, including the Internal Revenue Service, Social Security Administration, U.S. Department of Energy, U.S. Department of State, U.S. Department of Treasury, and U.S. International Trade Commission; National Science Foundation; The World Bank; Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York; Congressional Budget Office.
- Member: American Economic Association, American Finance Association, Association for Public Policy and Management, Econometric Society, International Association of Energy Economists, National Tax Association, the Royal Economic Society, and the Institute for Management Science.
- Referee: *American Economic Review; Canadian Journal of Economics; Columbia Journal of World Business; Econometrica; Economic Journal; Energy Economics; Energy Journal; Journal of Business; Journal of Business and Economic Statistics; Journal of Economic Literature; Journal of Finance; Journal of Financial Economics; Journal of Financial Intermediation; Journal of Financial Services Research; Journal of Industrial Economics; Journal of International Money and Finance; Journal of Law and Economics; Journal of Macroeconomics; Journal of Money, Credit, and Banking; Journal of Monetary Economics; Journal of Political Economy; Journal of Public Economics; Journal of Small Business Finance; Management Science; National Tax Journal; Quarterly Journal of Economics; Quarterly Review of Economics and Finance; Rand Journal of Economics;*

Review of Economic Studies; Review of Economics and Statistics; Review of Financial Economics; Scandinavian Journal of Economics; Southern Economic Journal; National Science Foundation; C.V. Starr Center for Applied Economics (New York University); Addison-Wesley Publishing Company; Ballinger Press; Cambridge University Press; Harvard Business School Press; MIT Press; W.W. Norton; Oxford University Press.

Associate Editor: *Federal Reserve Bank of New York Economic Policy Review; Journal of Industrial Economics; Journal of Small Business Finance.*

PUBLICATIONS AND PAPERS

Edited Volumes

Effects of Taxation on Multinational Corporations (with M. Feldstein and J.R. Hines), Chicago: University of Chicago Press, 1995.

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Studies in International Taxation (with A. Giovannini and J. B. Slemrod), Chicago: University of Chicago Press, 1993.

Financial Markets and Financial Crises, Chicago: University of Chicago Press, 1991.

Asymmetric Information, Corporate Finance, and Investment, Chicago: University of Chicago Press, 1990.

Textbook

Money, the Financial System, and the Economy, Reading: Addison-Wesley Publishing Company, 1st ed., 1994; 2nd ed., 1997.

Publications

Articles

"Inflation and the User Cost of Capital: Does Inflation Still Matter?" (with D. Cohen and K.A. Hassett), in M. Feldstein, ed., *The Costs and Benefits of Achieving Price Stability*, Chicago: University of Chicago Press, 1998.

"Fundamental Tax Reform and Corporate Finance" (with W.M. Gentry), in J.M. Poterba, ed., *Tax Policy and the Economy*, volume 12, Cambridge: MIT Press, 1998.

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"How Different Are Income and Consumption Taxes?," *American Economic Review* 87 (May 1997).

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"Capital-Market Imperfections and Investment," *Journal of Economic Literature*, forthcoming.

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